ORDER NO. SD7904-1559

Service Manual

SH-8010/K

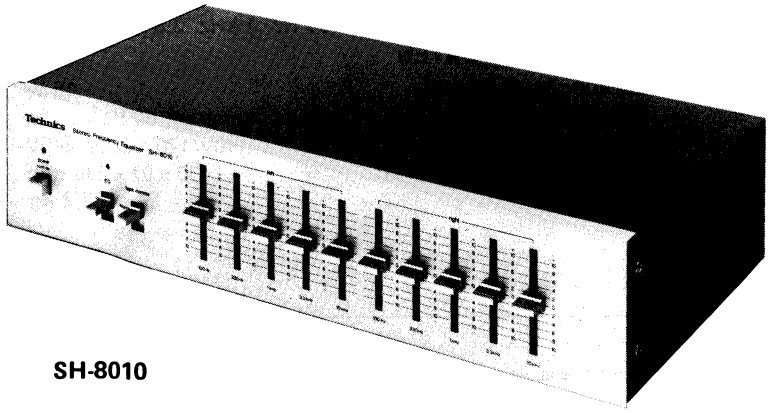
Stereo Frequency Equalizer

SH-8010

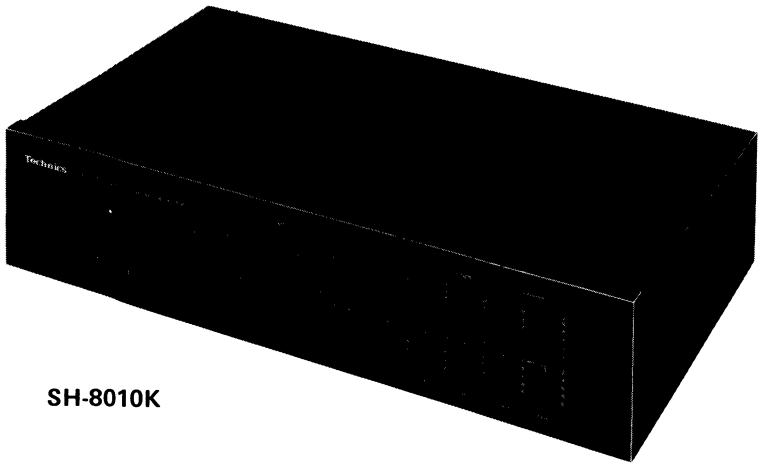
(E), (EG), (EB), (XGH),
(XGF), (X), (XA),(XAL), (XE)

SH-8010K

(EG)



SH-8010



SH-8010K

* The models SH-8010 (E), (EG) and SH-8010K (EG) are available in Scandinavia and European.
* The model SH-8010 (EB) is available in Belgium.
* The model SH-8010 (XGH) is available in Holland.
* The model SH-8010 (XGF) is available in France.
* The models SH-8010 (X) and (XA) are available in Asia, Latin America, Middle East and Africa.
* The model SH-8010 (XAL) is available in Australia.
* The model SH-8010 (XE) is available in United Kingdom.

TECHNICAL SPECIFICATIONS

Specifications are subject to change without notice for further improvement.

Maximum output voltage	4 V (1 kHz)
Total harmonic distortion + noise	0.05% (20 Hz~20 kHz)
S/N	90 dB
Frequency response	10 Hz~100 kHz, −1 dB
Rated output voltage	1 V
Input sensitivity	1 V
Maximum input voltage	4 V (1 kHz)
Input impedance	47 kilohms
Gain	0±1 dB
Channel balance	250 Hz~6300 Hz ±0.3 dB
Channel separation 1 kHz	80 dB
Band level controls	+12 dB~ −12 dB (5 elements continuously variable)
Center frequency	100 Hz, 330 Hz, 1 kHz, 3.3 kHz, 10 kHz

GENERAL

Power consumption	15W
Power supply	AC 50Hz/60Hz, 110V/120V/220V/240V
Dimensions (W × H × D)	430 × 97 × 230 mm ($16\frac{15}{16}$" × $3\frac{13}{16}$" × $9\frac{1}{16}$")
Weight	3.2 kg (7.1 lb.)

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Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

TECHNISCHE DATEN

Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.

Maximalausgangsspannung:	4 V (1 kHz)
Gesamtklirrfaktor + Rauschen:	0,05% (20 Hz~20 kHz)
Rauschabstand:	90 dB
Frequenzgang:	10 Hz~100 kHz, −1 dB
Nennausgangsspannung:	1 V
Eingangsspannung:	1 V
Maximaleingangsspannung:	4 V (1 kHz)
Eingangsimpedanz:	47 kΩ
Verstärkung:	0 ± 1 dB
Kanalsy mmetrie	250 Hz~6300 Hz ±0,3 dB
Kanaltrennung 1 kHz	80 dB
Frequenzgangregler:	+12 dB~−12 dB (5 Regler, stufenlos verstellbar)
Mittenfrequenzen:	100 Hz, 330 Hz, 1 kHz, 3,3 kHz, 10 kHz

ALLGEMEINE DATEN

Leistungsaufnahme:	15 W
Stromversorgung:	Wechselstrom 50 Hz/60 Hz, 110V/120V/220V/240V
Abmessungen (B × H × T):	430 × 97 × 230 mm
Gewicht:	3,2 kg

CARACTERISTIQUES TECHIQUES

Sujet à changement sans préaris.

Tension de sortie maximale:	4 V (1 kHz)
Distorsion harmonique totale + bruit:	0,05% (20 Hz~20 kHz)
Signal/bruit:	90 dB
Courbe de réponse:	10 Hz à 100 kHz à −1 dB
Tension de sortie nominale:	1 V
Sensibilité d'entrée:	1 V
Tension d'entrée maximale:	4 V (1 kHz)
Impédance d'entrée:	47 kilohms
Gain:	0 ± 1 dB
Equilibrage de canal:	250 Hz~6300 Hz ±0,3 dB
Séparation de canal 1 kHz:	80 dB
Commandes de niveau de gamme:	+12 dB à −12 dB (5 éléments, continuellement variables)
Fréquences charnières:	100 Hz, 330 Hz, 1 kHz, 3,3 kHz, 10 kHz

GENERALITES

Consommation:	15 W
Alimentation:	CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (l × h × pr) mm:	430 × 97 × 230 mm ($16\frac{15}{16}$" × $3\frac{13}{16}$" × $9\frac{1}{16}$")
Poids:	3,2 kg (7,1 lb.)

■ CONTROL OF THE FREQUENCY RESPONSE

- **Band-level control**

These controls can be used for continuously varying the level of each frequency response from +12dB to −12dB.

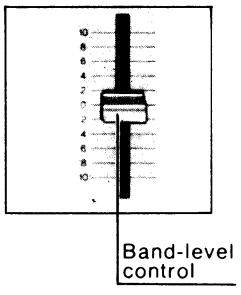
With the frequency response "flat" at the "0" position:

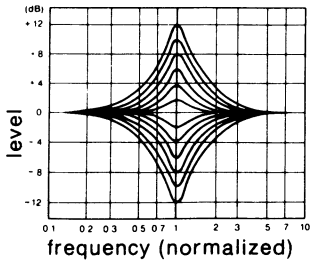
* The frequency response will have a "peak" when the controls are moved in the direction toward the "+" position, and will reach a maximum peak of +12 dB at the "+10" position.

* The frequency response will have a "dip" when the controls are moved in the direction toward the "−" position, and will reach a maximum dip of −12 dB at the "−10" position.

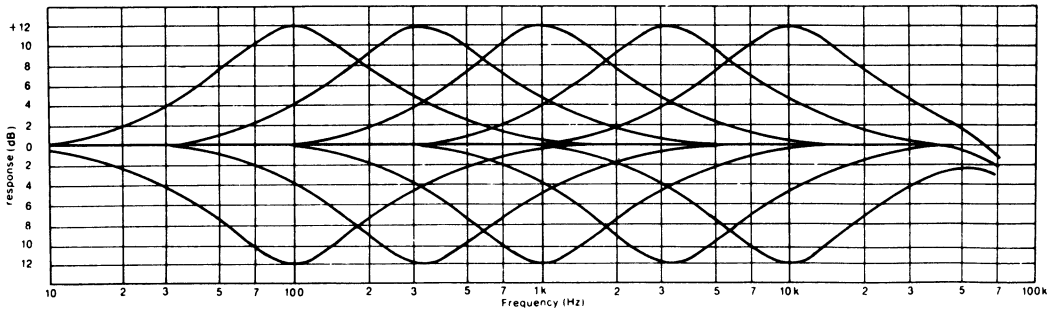
The figure shows the changes in the frequency response when the band-level controls are used.

Each of the 5 left and 5 right controls can be used to vary the frequency response with the same characteristic curve.



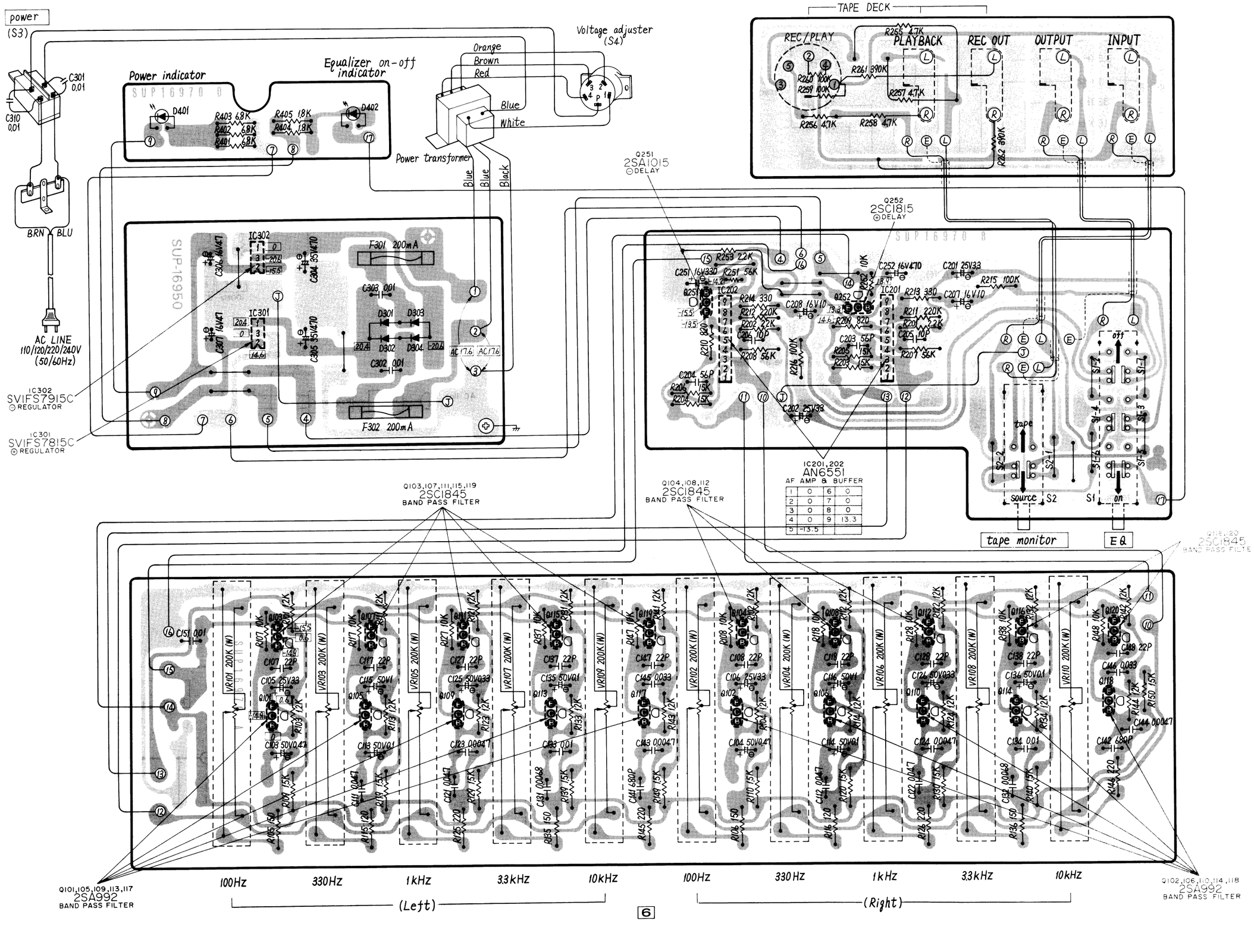


- **Total frequency response**



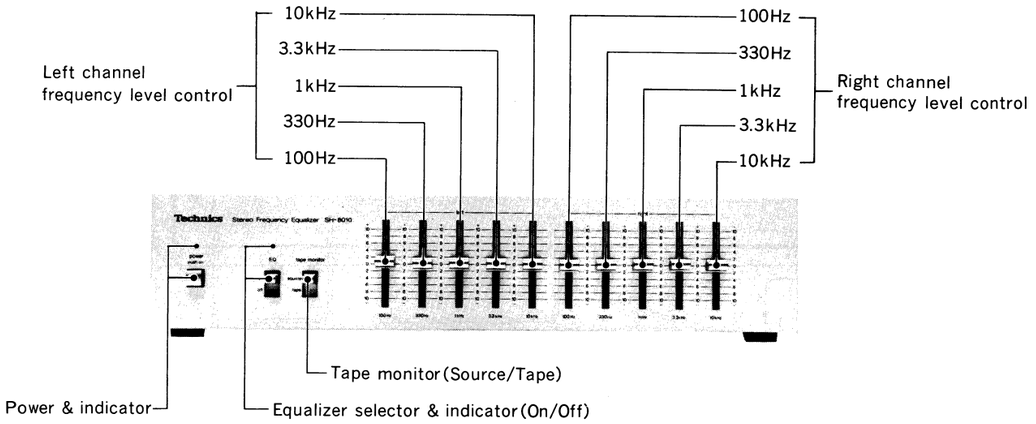
■ PRINTED CIRCUIT BOARD WIRING VIEW

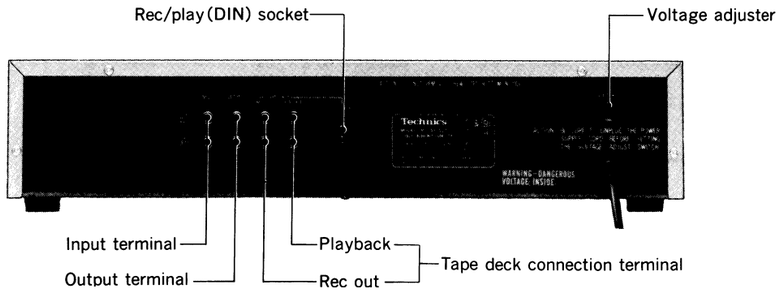
Earth (Ground) Lines

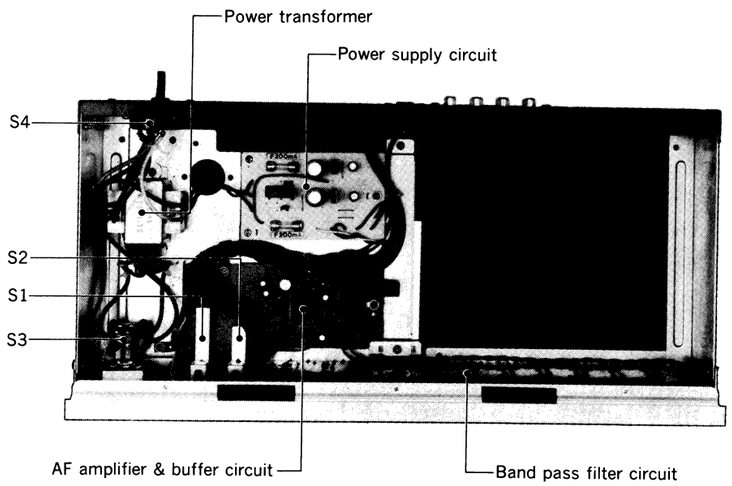


5 6

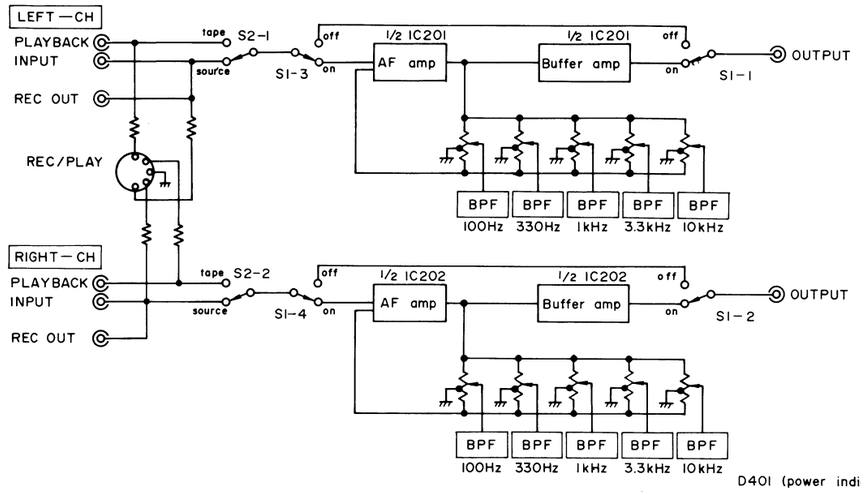
■ LOCATION OF CONTROLS



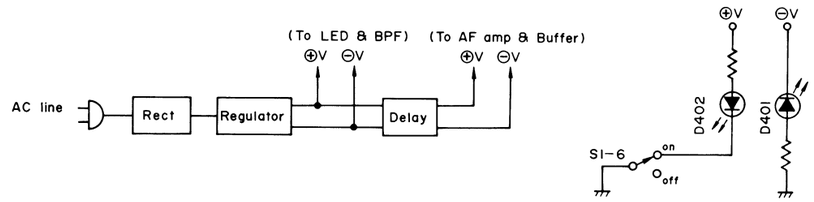




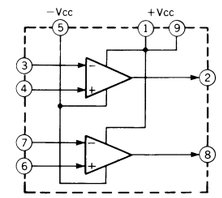
■ BLOCK DIAGRAM



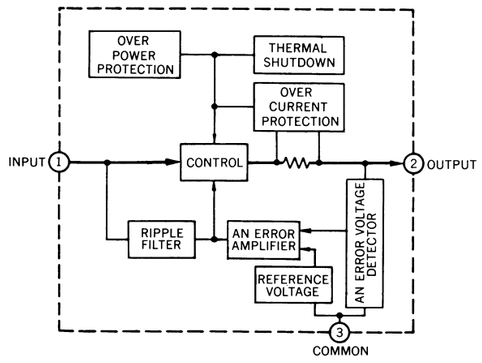
D401 (power indicator)
D402 (EQ on/off indicator)



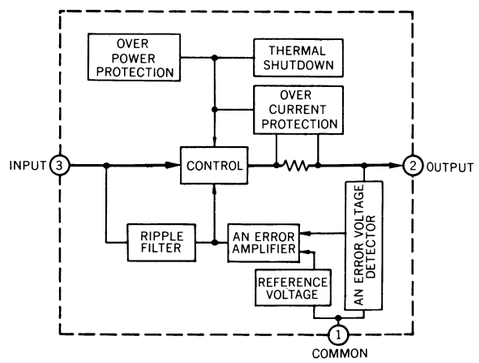
■ BLOCK DIAGRAM OF IC'S



IC201, 202 (AN6551)
AF amplifier & buffer

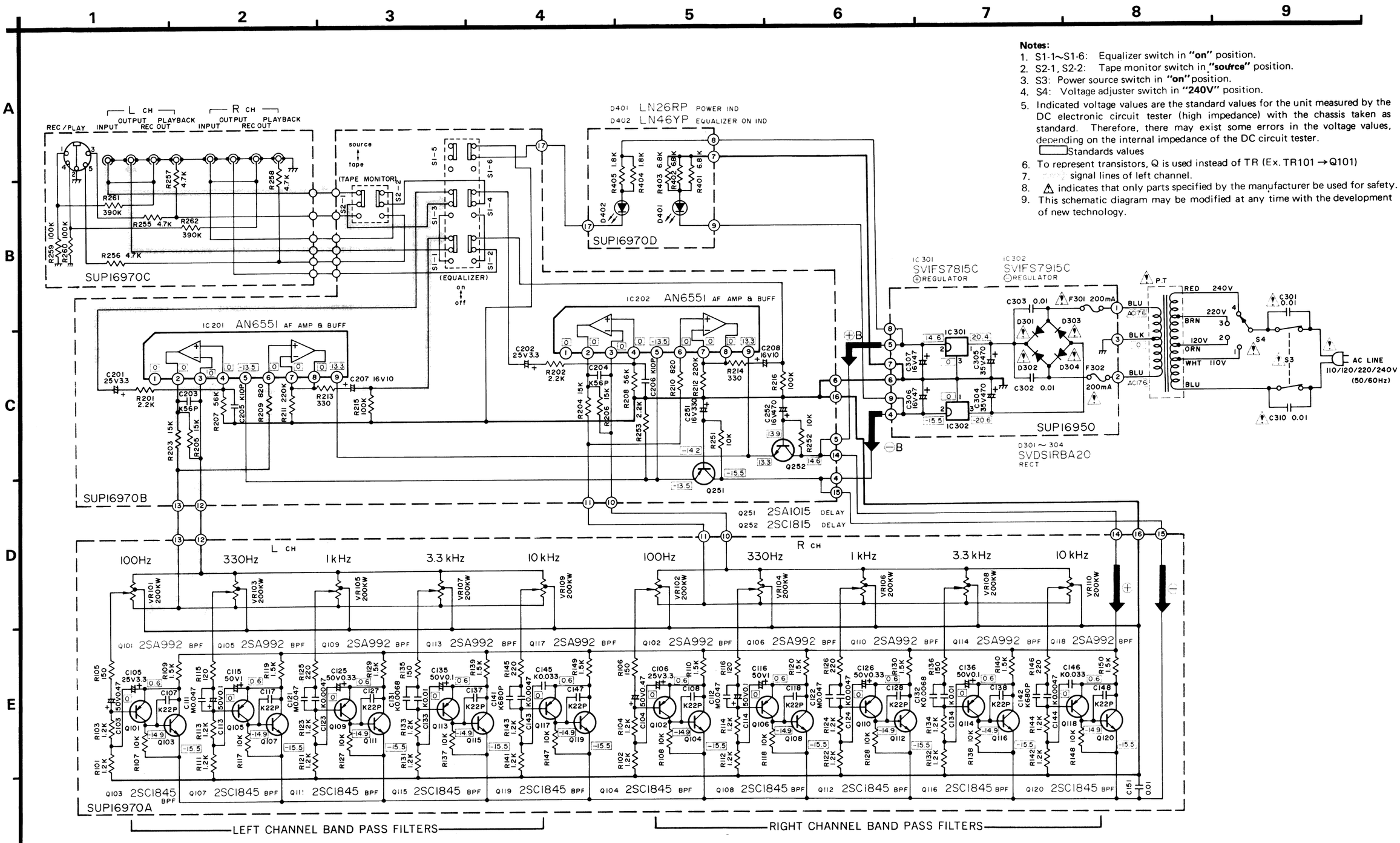


IC301 (SVIFS7815C)
⊕ Regulator



IC302 (SVIFS7915C)
⊖ Regulator

■ SCHEMATIC DIAGRAM



Notes:

1. S1-1~S1-6: Equalizer switch in **"on"** position.
2. S2-1, S2-2: Tape monitor switch in **"source"** position.
3. S3: Power source switch in **"on"** position.
4. S4: Voltage adjuster switch in **"240V"** position.
5. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
   Standards values
6. To represent transistors, Q is used instead of TR (Ex. TR101 → Q101)
7. signal lines of left channel.
8. ⚠ indicates that only parts specified by the manufacturer be used for safety.
9. This schematic diagram may be modified at any time with the development of new technology.

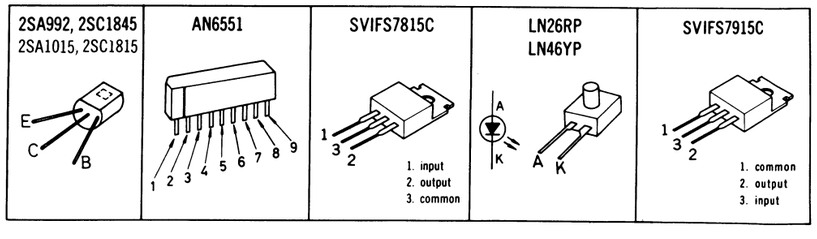
Ref. No.	Product Part No.	Standard Part No.
D301 ~ 304	SVDS1RBA20	SVDS1RBA40

■ REPLACEMENT PARTS LIST (Electric Parts)

Notes: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts order.
2. ⚠ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.		Part No.	Part Name & Description
INTEGRATED CIRCUITS			
IC201, 202		AN6551	IC, AF Amplifier & Buffer
IC301		SVIFS7815C	IC, Regulator (+)
IC302		SVIFS7915C	IC, Regulator (–)
TRANSISTORS			
Q101, 102, 105, 106, 109, 110, 113, 114, 117, 118		2SA992	Transistor, Band Pass Filter
Q103, 104, 107, 108, 111, 112, 115, 116, 119, 120		2SC1845	Transistor, Band Pass Filter
Q251		2SA1015–O	Transistor, Delay
Q252		2SC1815–GR	Transistor, Delay
DIODES			
D301~304	⚠	**SVDS1RBA40**	Rectifier (Product Part SVDS1RBA20)
D401		**LN26RP**	Light Emitting Diode, Power Indicator (Red)
D402		**LN46YP**	Light Emitting Diode, EQ Indicator (Yellow)
TRANSFORMER			
P.T.	⚠	SLT5J103–W	Transformer, Power
FUSES			
F301, 302	⚠	XBA2C02SSO	Fuse, 200mA (250V)
VARIABLE RESISTORS			
VR101~110		EVA91S20W25S	Band Level Control, 200kΩ (W)
SWITCHES			
S1		SSL143	Switch, Equalizer (EQ)
S2		SSLY1	Switch, Tape Monitor
S3	⚠	ESB70133	Switch, Power Source
S4	⚠	ESE372	Switch, Voltage Adjuster
RESISTORS			
R101, 102		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R103, 104		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R105, 106		**ERD25FJ151**	Carbon, 150Ω, 1/4W, ± 5%
R107, 108		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R109, 110		**ERD25FJ152**	Carbon, 1.5kΩ, 1/4W, ± 5%
R111, 112		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R113, 114		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R115, 116		**ERD25FJ121**	Carbon, 120Ω, 1/4W, ± 5%
R117, 118		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R119, 120		**ERD25FJ152**	Carbon, 1.5kΩ, 1/4W, ± 5%
R121, 122		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R123, 124		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R125, 126		**ERD25FJ221**	Carbon, 220Ω, 1/4W, ± 5%
R127, 128		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R129, 130		**ERD25FJ152**	Carbon, 1.5kΩ, 1/4W, ± 5%
R131, 132		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R133, 134		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R135, 136		**ERD25FJ151**	Carbon, 150Ω, 1/4W, ± 5%
R137, 138		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R139, 140		**ERD25FJ152**	Carbon, 1.5kΩ, 1/4W, ± 5%
R141, 142		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R143, 144		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R145, 146		**ERD25FJ221**	Carbon, 220Ω, 1/4W, ± 5%
R147, 148		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R149, 150		**ERD25FJ152**	Carbon, 1.5kΩ, 1/4W, ± 5%
R201, 202		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ± 5%
R203, 204		**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ± 5%
R205, 206		**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ± 5%
R207, 208		**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%
R209, 210		**ERD25FJ821**	Carbon, 820Ω, 1/4W, ± 5%
R211, 212		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
R213, 214		**ERD25FJ331**	Carbon, 330Ω, 1/4W, ± 5%
R215, 216		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R251, 252		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R253		**ERD25FJ222**	Carbon, 2.2kΩ, 1/4W, ± 5%
R255, 256		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R257, 258		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R259, 260		**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%
R261, 262		**ERD25TJ394**	Carbon, 390kΩ, 1/4W, ± 5%
R401, 402		**ERD25FJ682**	Carbon, 6.8kΩ, 1/4W, ± 5%
R403		**ERD25FJ682**	Carbon, 6.8kΩ, 1/4W, ± 5%
R404, 405		**ERD25FJ182**	Carbon, 1.8kΩ, 1/4W, ± 5%
CAPACITORS			
C103, 104		**ECEA50ZR47**	Electrolytic, 0.47μF, 50V
C105, 106		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C107, 108		ECCD1H220KC	Ceramic, 22pF, 50V, ±10%
C111, 112		ECQM1H473KZ	Polyester, 0.047μF, 50V, ±10%
C113, 114		**ECEA50ZR1**	Electrolytic, 0.1μF, 50V
C115, 116		**ECEA50Z1**	Electrolytic, 1μF, 50V
C117, 118		ECCD1H220KC	Ceramic, 22pF, 50V, ±10%
C121, 122		ECQM1H473KZ	Polyester, 0.047μF, 50V, ±10%
C123, 124		ECQM1H472KZ	Polyester, 0.0047μF, 50V, ±10%
C125, 126		**ECEA50ZR33**	Electrolytic, 0.33μF, 50V
C127, 128		ECCD1H220KC	Ceramic, 22pF, 50V, ±10%
C131, 132		ECQM1H682KZ	Polyester, 0.0068μF, 50V, ±10%
C133, 134		ECQM1H103KZ	Polyester, 0.01μF, 50V, ±10%
C135, 136		**ECEA50ZR1**	Electrolytic, 0.1μF, 50V
C137, 138		ECCD1H220KC	Ceramic, 22pF, 50V, ±10%
C141, 142		ECKD1H681KB	Ceramic, 680pF, 50V, ±10%
C143, 144		ECQM1H472KZ	Polyester, 0.0047μF, 50V, ±10%
C145, 146		ECQM1H333KZ	Polyester, 0.033μF, 50V, ±10%
C147, 148		ECCD1H220KC	Ceramic, 22pF, 50V, ±10%
C151		ECKD1H103ZF	Ceramic, 0.01μF, 50V, +80 −20%
C201, 202		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C203, 204		ECCD1H560K	Ceramic, 56pF, 50V, ±10%
C205, 206		ECCD1H100K	Ceramic, 10pF, 50V, ±10%
C207, 208		**ECEA1HS100**	Electrolytic, 10μF, 50V
C251		**ECEA1CS331**	Electrolytic, 330μF, 16V
C252		**ECEA1CS471**	Electrolytic, 470μF, 16V
C301	⚠	ECKDHS103SE2	Ceramic, 0.01μF, 400VAC, +50 −20%
C302, 303		ECKD1H103ZF	Ceramic, 0.01μF, 50V, +80 −20%
C304, 305		**ECEA1VS471**	Electrolytic, 470μF, 35V
C306, 307		**ECEA1ES470**	Electrolytic, 47μF, 25V
C310	⚠	ECKDHS103SE2	Ceramic, 0.01μF, 400VAC, +50 −20%

■ TERMINAL GUIDE



■ REPLACEMENT PARTS LIST (Cabinet & Chassis Parts)

Ref. No.		Part No.	Part Name & Description
CABINET and CHASSIS PARTS			
1		SBDY1	Knob, Frequency Level Control
2		SGWH8010M	Panel, Front Ass'y
3		SUS145	Spring, Power Switch Button
4		SBC209	Button, Power Switch
5		SHGY1	Cushion, LED Indicator P.C.B.
6		SBD19	Knob, Tape Monitor & EQ Switch
7		RME143ZA	Clamp, AC Cord
8		RHG855Z	Rubber Spacer
9		SKL225	Foot, Bottom Board
10		SKUH8010M	Bottom Board; Ass'y
11		SJF3803	Terminal, Tape Deck & Input/Output
12		SGPY1–1A	Rear Panel (Except for [X, XA, XAL & E])
12 [E] only		SGPY1–1B	Rear Panel (Only for [E])
12 [X, XA, XAL] only		SGPY1–1C	Rear Panel (Only for [X, XA] & [XAL])
13		SHR401–1	Latch, Terminal M'tg
14		SHR127	Bushing, AC Cord (Except for [XE])
14 [XE] only		SHR129	Bushing, AC Cord (Only for [XE])
15	⚠	RJA23ZC	AC Cord (Except for [XAL & XE])
15 [XAL] only	⚠	QFC1208M	AC Cord (Only for [XAL])
15 [XE] only	⚠	RJA45ZC	AC Cord (Only for [XE])
16		SKAY1	Cabinet
17		SJS6509	Socket, Rec/Play
18		SJR205	Terminal Strip, 2 pin
SCREWS and WASHERS			
●		**XTS3+8BFN**	Screw, Front Panel M'tg

[E] is available in Scandinavia and European.
[XGF] is available in France.

Ref. No.		Part No.	Part Name & Description
㉗		**XSN3+8S**	Screw, P.T. & Bottom Board M'tg
㉘		**XWG3**	Washer
㉙		**XWT3**	Washer
㉚		**XSN3+6S**	Screw, Chassis & P.C.B. M'tg
㉛		**XWC3B**	Washer
㉜		**XTN3+12B**	Screw, Foot (W/Chassis) M'tg
㉝		**XTB3+6BFN**	Screw, Rear Panel & Chassis M'tg
㉞		**XTB3+6BFN**	Screw, Cabinet M'tg
㉟		**XTB4+8BFN**	Screw, Cabinet, M'tg
㊱		**XTB3+6BFZ**	Screw, Voltage Adjuster & DIN Socket M'tg
㊲		**XTS3+8BFN**	Screw, Chassis M'tg
ACCESSORIES			
A1		SJP2129-5	Cord, Connection Shield
A2 [X, XA] only	⚠	SJP5213-1	Plug Adapter, AC Power
PACKING PARTS			
P1		SPP501	Polyethylene Bag
P2		SPS2177	Pad, Left Side
P3		SPS2179	Pad, Right Side
P4		SPSY1	Pad, Upper & Lower Side
P5		SPGY3	Carton Box (Except for [XGF])
P5 [XGF] only		SPGY4	Carton Box (Only for [XGF])
P6		SQXY50002	Instructions Book, Printed Matter

[X, XA] are available in Asia, Latin America, Middle East and Africa.
[XAL] is available in Australia.
[XE] is available in United Kingdom.

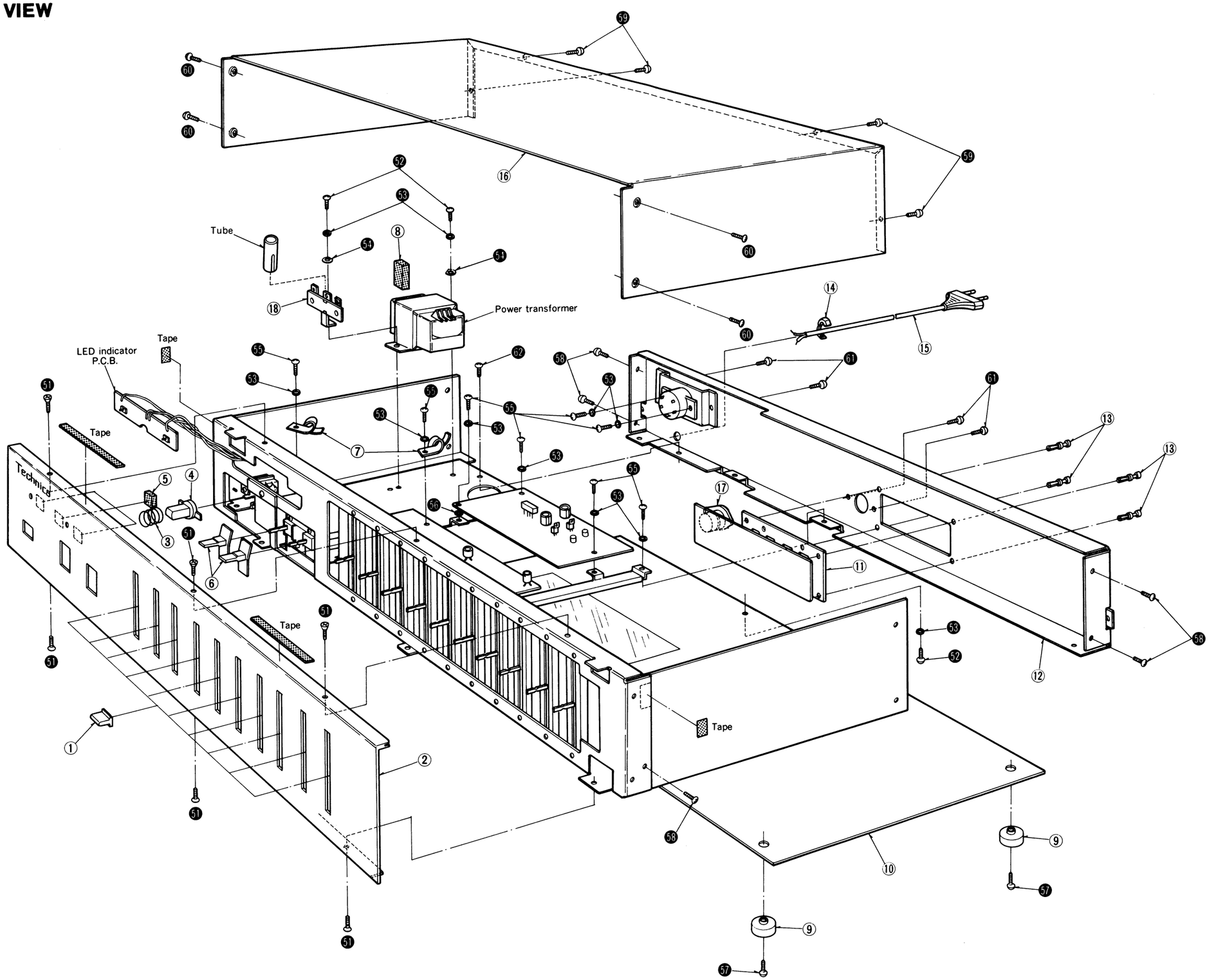
■ CHANGE OF PARTS LIST

Black Panel Model No. SH-8010K (EG)

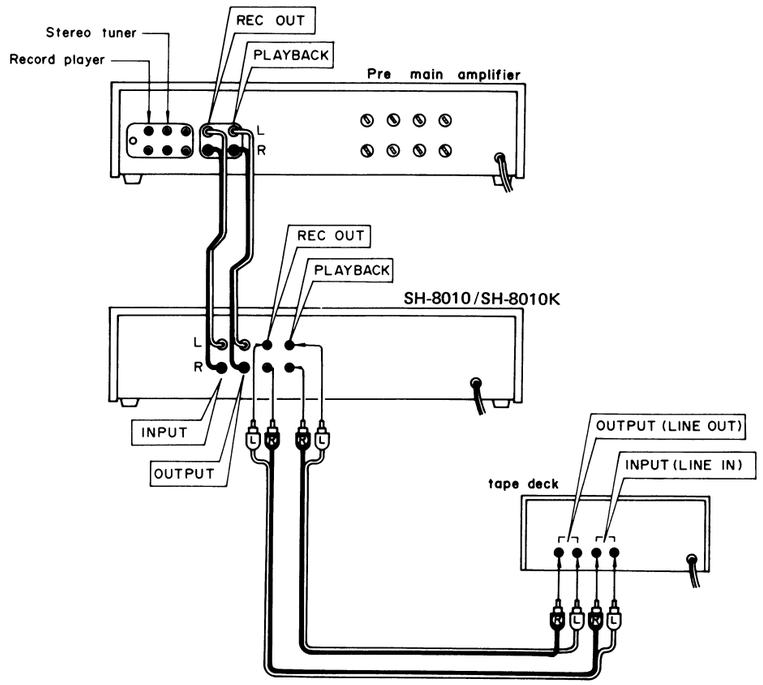
Note: This parts list included only the changes of the model SH-8010 parts list.

Ref. No.	Change of Part No. SH-8010	Change of Part No. SH-8010K	Part Name & Description	Per Set (Pcs.)		Remarks
CABINET and CHASSIS PARTS						
1	SBDY1	SBDY1–1	Knob, Frequency Level Control	10		○
2	SGWH8010M	SGWH8010KD	Panel, Front Ass'y (Black)	1		○
4	SBC209	SBC209–1	Button, Power Switch	1		
6	SBD19	SBD19–1	Knob, Tape Monitor & EQ Switch	2		
12	SGPY1–1A SGPY1–1B [E] SGPY1–1C [X, XA, XAL]	SGPY1–1D	Rear Panel	1		○
14	SHR127 SHR129 [XE]	SHR127	Bushing, AC Cord	1		
15	RJA23ZC QFC1208M [XAL] RJA45ZC [XE]	RJA23ZC	AC Cord	1		
16	SKAY1	SKAY1–1	Cabinet	1		○
SCREWS						
㊴	XTS3+8BFN	XTS3+8BFZ	Screw, Front Panel Lower Side M'tg (3 pcs.)	3		
㊵	XTB3+6BFN	XTB3+6BFZ	Screw, Cabinet M'tg	4		
㊵	XTB4+8BFN	XTB4+8BFZ	Screw, Cabinet M'tg	4		
ACCESSORY						
A2	SJP5213-1 [X, XA]	Deletion	Plug Adapter	0		
PACKING PARTS						
P5	SPGY3 SPGY4 [XGF]	SPGY5	Carton Box	1		○

■ EXPLODED VIEW



■ CONNECTIONS



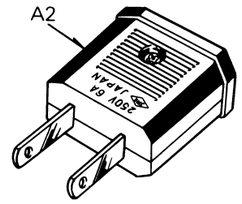
- **Tape monitor switch**

  Source:
  Set to this position to listen to phono discs or radio broadcasts.
  Tape:
  Set to this position to playback the sound from a tape deck.

- **Equalizer switch**

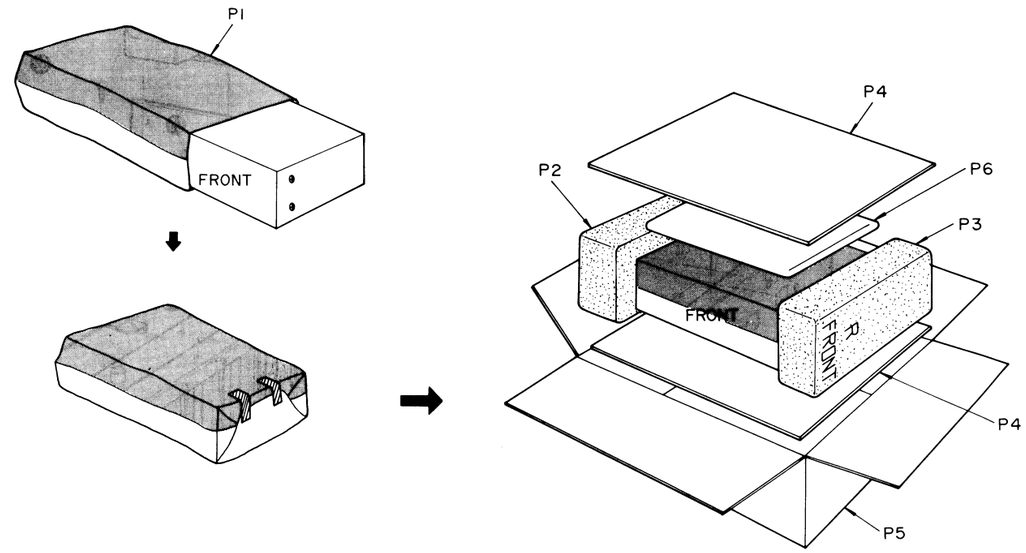
  This switch turns the equalizer circuit on and off. If the switch is set to the "off" position, input signals are sent directly to the output terminals, without passing through the frequency equalizer circuitry. When this switch is set to the "off" position, any of the controls can be set to any position without effecting the signals, and signals can be heard even if the power switch is in the "off" position. Set to the "on" position for control of the frequency response. The efficiency of this unit can be easily checked by changing this switch between "on" and "off".

■ ACCESSORIES



Accessory of A2 is available in Asia, Latin America, Middle East and Africa .

■ PACKINGS



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